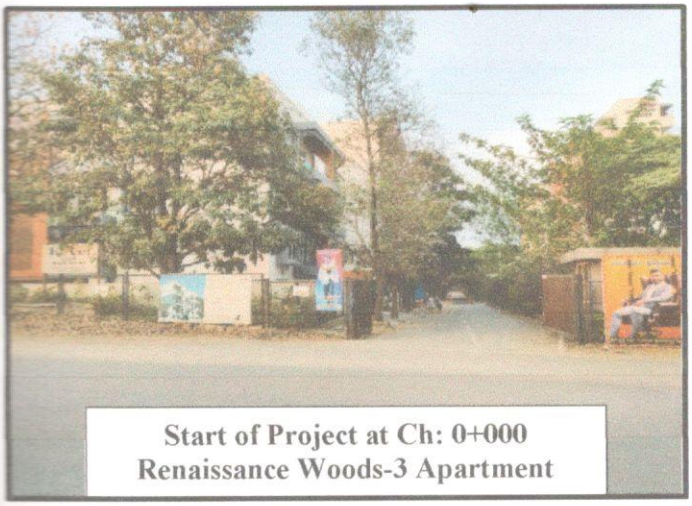
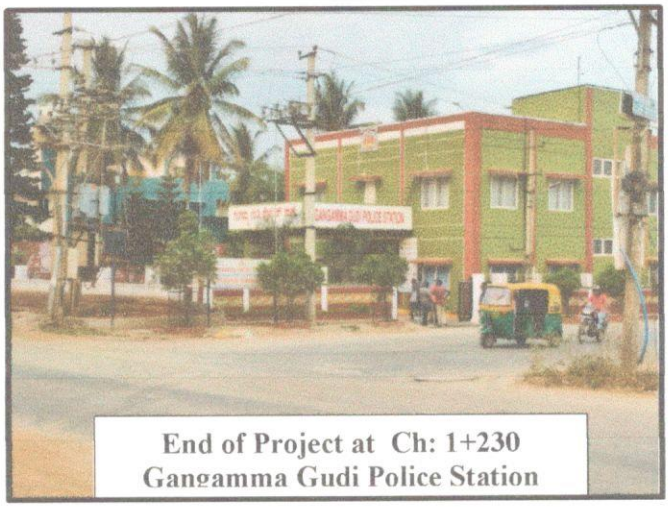
BRUHATH BENGALURU MAHANAGARA PALIKE (BBMP)

Office of the Executive Engineer,
Road Infrastructure – Dasarahalli Division
No. 207, 2nd floor, New Annexe Building-3, N R Square, Bengaluru-560002

PROJECT: WIDENING AND COMPREHENSIVE DEVELPOMENT OF ABBIGERE MAIN ROAD FROM RENAISSANCE WOODS - 3 APARTMENTS TO ABBIGERE PARK.



Start of Project at Ch: 0+000
Renaissance Woods-3 Apartment



End of Project at Ch: 1+230
Gangamma Gudi Police Station

Contractor: Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.

QUALITY TEST REPORT

SECOND & PART BILL

PMC Consultant:

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Arehalli, Subramanyapura Post, Bangalore–560061,
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CIN:U70100KA2015PTC084544, PAN:AAFCN1036R, GSTIN 29AAFCN1036R1ZZ

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QUALITY TEST REPORT ON CEMENT

NEZ Infratech Private Limited
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Client	BRUHATH BENGALURU MAHANAGARA PALIKE (BBMP) Road Infrastructure - Dasarahalli Division
Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	Cement
Technical References	IS: 4031 Part -II

SPECIFIC GRAVITY OF CEMENT

Section/ Location of Lab	: NEZ INFRATECH PRIVATE LIMITED No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061
Name/Brand of Cement	: ACC
Grade of Cement	: O.P.C- 53 Grade
Date of testing	: 9-09-2021

Determination	Trail No.			Average
	1	2	3	
Weight of bottle (w1)	122	122	122	122
Weight of bottle with sample (w2)	181	180	179	180
Weight of bottle with sample and kerosene(w3)	375	373	372	373
Weight of bottle with kerosene (w4)	330	330	330	330
Specific Gravity of Kerosene	0.79	0.79	0.79	0.79
Specific Gravity of cement	**3.3**	**3.05**	**3.00**	**3.11**

Remarks: The Specific Gravity of Cement as per IS 4031- Part –II is nearly 3.15.

Prepared by Checked by Approved by

NEZ Infratech Pvt. Ltd.

Client	BRUHATH BENGALURU MAHANAGARA PALIKE (BBMP) Road Infrastructure - Dasarahalli Division
Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	Cement
Technical References	IS: 4031 Part -II

SPECIFIC GRAVITY OF CEMENT

Section/ Location of Lab	:	NEZ INFRATECH PRIVATE LIMITED No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061
Name/Brand of Cement	:	ACC
Grade of Cement	:	O.P.C- 53 Grade
Date of testing	:	9-09-2021

Determination	Trail No.			Average
	1	2	3	
Weight of bottle (w1)	122	122	122	122
Weight of bottle with sample (w2)	182	179	180	180
Weight of bottle with sample and kerosene (w3)	375	373	373	374
Weight of bottle with kerosene (w4)	330	330	330	330
Specific Gravity of Kerosene	0.79	0.79	0.79	0.79
Specific Gravity of cement	**3.16**	**3.22**	**3.05**	**3.14**

Remarks: The Specific Gravity of Cement as per IS 4031- Part –II is nearly 3.15.

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ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ರಸ್ತೆ ಮೂಲಭೂತ ಸೌಕರ್ಯಗಳು, (ದಾಸರಹಳ್ಳಿ ವಿಭಾಗ)
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹನಗರ ಪಾಲಿಕೆ
ಬೆಂಗಳೂರು - 02

NEZ Infratech Private Limited
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CIN:U70100KA2015PTC084544, PAN:AAFCN1036R, GSTIN 29AAFCN1036R1ZZ

Client	BRUHATH BENGALURU MAHANAGARA PALIKE (BBMP) Road Infrastructure – Dasarahalli Division
Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	Cement
Technical References	IS: 4031 Part -I

FINENESS OF CEMENT
(IS: 4031 PART- I)

Section/ Location of Lab	:	NEZ INFRATECH PRIVATE LIMITED No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061
Name/Brand of Cement	:	ACC
Grade of Cement	:	O.P.C- 53 Grade
Date of testing	:	9-09-2021

Sl. No.	DESCRIPTION	1	2	3	SPECIFIED LIMIT AS PER IS 8112
1	Wt. of Sample taken (W1) gm	100	100	100	Max. 10%
2	Wt. of residue on 90 mic. sieve (W2) gm	5.65	8.32	7.93	
3	Fineness (%) (W2/W1)X100	5.65	8.32	7.93	
	Average (%)	7.3			

Remarks: The test for Fineness of cement has passed and within the limit as specified by IS code.

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ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ

NEZ Infratech Private Limited
Civil Engineering Consultants
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CIN:U70100KA2015PTC084544, PAN:AAFCN1036R, GSTIN 29AAFCN1036R1ZZ

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Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	Cement
Technical References	IS: 4031 Part -I

FINENESS OF CEMENT

Section/ Location of Lab	:	NEZ INFRATECH PRIVATE LIMITED No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061
Name/Brand of Cement	:	ACC
Grade of Cement	:	O.P.C- 53 Grade
Date of testing	:	9-09-2021

Sl. No.	DESCRIPTION	1	2	3	SPECIFIED LIMIT AS PER IS 8112
1	Wt. of Sample taken (W1) gm	100	100	100	Max. 10%
2	Wt. of residue on 90mic. sieve (W2) gm	7.22	8.54	6.8	
3	Fineness (%) (W2/W1)X100	7.22	8.54	6.8	
	Average (%)	7.52			

Remarks: The test for Fineness of cement has passed and within the limit as specified by IS code.

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ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ರಸ್ತೆ ಮೂಲಭೂತ ಸೌಕರ್ಯಗಳು, (ದಾಸರಹಳ್ಳಿ ವಿಭಾಗ)
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
ಬೆಂಗಳೂರು - ೫೬

Client	BRUHATH BENGALURU MAHANAGARA PALIKE (BBMP) Road Infrastructure – Dasarahalli Division
Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	Cement
Technical References	IS: 4031 & IS: 269-2015.

PHYSICAL TESTS ON CEMENT		
Section/ Location of Lab	:	NEZ INFRATECH PRIVATE LIMITED No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061
Name/Brand of	:	ACC- 53 Grade
Type	:	O.P.C
Period of test	:	13-09-2021 to 16-09-2021

Sl. No.	Name of Test	Test Result	Requirements as per IS 269-2015
1	Initial setting time	**137 min**	Shall not be less than 30 min
2	Final setting time	**255 min**	Shall not be more than 600 min
3	Compressive strength a) 3 days b) 7 days	**30.35 N/ Sq mm** **45.2 N/ Sq mm**	Shall not be less than 27 N/ Sq mm 37 N/ Sq mm

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
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ಬೆಂಗಳೂರು - 02

CHEMICAL TESTS

Sl. No.	Name of Test	Test Result	Requirements as per IS 269-2015
1	Ratio of percentage of lime to percentage of silica, alumina and iron oxide	0.94	0.66-1.02
2	Ratio of percentage of Alumina to Iron Oxide	1.29	Not less than 0.66
3	Insoluble Residue (% by mass)	2.67	Not more than 5%
4	Magnesia, (% by mass)	1.48	Not more than 6%
5	Sulphuric anhydride, (% by mass)	2.26	Not more than 3.5%
6	Total loss on Ignition (% by mass)	1.8	Not more than 5%
7	Total chlorides (% by mass)	0.0215	0.10 max

Remarks: the physical and chemical properties of the cement are within the permissible limits.

Prepared by Checked by Approved by

Nez Infratech Pvt. Ltd

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ಬೆಂಗಳೂರು - 12.

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CIN:U70100KA2015PTC084544, PAN:AAFCN1036R, GSTIN 29AAFCN1036R1ZZ

QUALITY TEST REPORT ON FINE AGGREGATE

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CIN:U70100KA2015PTC084544, PAN:AAFCN1036R, GSTIN 29AAFCN1036R1ZZ

Client	BRUHATH BENGALURU MAHANAGARA PALIKE (BBMP) Road Infrastructure – Dasarahalli Division
Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	Fine aggregates - M sand
Technical References	IS: 383-2016

SEIVE ANALYSIS OF FINE AGGREGATE

Section/ Location of Lab : NEZ INFRATECH PRIVATE LIMITED
No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061

Source of Material : M-Sand

Date of Testing : 17-09-2021 1500gm

IS Sieve Size, mm	Percentage Passing	Specification as Per IS: 383-2016 Percentage Passing				Remarks
		Zone-I	Zone-II	Zone-III	Zone-IV	
10	**100**	100	100	100	100	The Sample Conforms to Grading Zone-II
4.75	**96.5**	90-100	90-100	90-100	95-100	
2.36	**81.5**	60-95	75-100	85-100	95-100	
1.18	**63.5**	30-70	55-90	75-100	90-100	
600.mic	**46.7**	15-34	35-59	60-79	80-100	
300.mic	**24.6**	5-20	8-30	12-40	15-50	
150.mic	**9.3**	0-20	0-20	0-20	0-15	

Remarks: the fine aggregate conforms to specification of zone II.

Prepared by Checked by Approved by

Nez Infratech Pvt. Ltd.

NEZ Infratech Private Limited
Civil Engineering Consultants
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CIN:U70100KA2015PTC084544, PAN:AAFCN1036R, GSTIN 29AAFCN1036R1ZZ

Client	BRUHATH BENGALURU MAHANAGARA PALIKE (BBMP) Road Infrastructure – Dasarahalli Division
Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	Fine aggregates - M sand
Technical References	IS: 383-2016

SPECIFIC GRAVITY OF FINE AGGREGATE

Section/ Location of Lab : NEZ INFRATECH PRIVATE LIMITED
No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061

Source of Material : M-Sand

Date of Testing : 17-09-2021

BY PYCNOMETER METHOD

Description	1	2	3
Pycnometer Bottle Number	A	B	C
Weight of Pycnometer(W1) (g)	446	446	446
Weight of Pycnometer + Sample (W2) (g)	980	975	973
Weight of bottle + Water + Sample (W3)(g)	1535	1530	1528
Weight of Pycnometer + Water (W4)(g)	1200	1200	1200
Specific Gravity	2.68	2.65	2.64
Water Absorption	0.81	0.60	0.78
Average Specific Gravity	**2.66**		
Average Water Absorption (%)	**0.73**		

Prepared by Checked by Approved by

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ಬೆಂಗಳೂರು - 92.

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Sample Identification	Fine aggregates - M sand
Technical References	IS: 383-2016

SPECIFIC GRAVITY OF FINE AGGREGATE

Section/ Location of Lab : NEZ INFRATECH PRIVATE LIMITED
No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061

Source of Material : M-Sand

Date of Testing : 17-09-2021

BY PYCNOMETER METHOD

Description	1	2	3
Pycnometer Bottle Number	A	B	C
Weight of Pycnometer(W1) (g)	446	446	446
Weight of Pycnometer + Sample (W2) (g)	975	976	980
Weight of bottle + Water + Sample (W3)(g)	1535	1531	1528
Weight of Pycnometer + Water (W4)(g)	1200	1200	1200
Specific Gravity	2.69	2.66	2.60
Water Absorption	1.21	1.01	0.95
Average Specific Gravity	**2.65**		
Average Water Absorption (%)	**1.05**		

Prepared by Checked by Approved by

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Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	Fine aggregates - M sand
Technical References	IS: 383-2016

SEIVE ANALYSIS OF FINE AGGREGATE

Section/ Location of Lab : NEZ INFRATECH PRIVATE LIMITED
No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061

Source of Material : M-Sand

Date of Testing : 17-09-2021

IS Sieve Size, mm	Percentage Passing	Specification as Per IS: 383-2016 Percentage Passing				Remarks
		Zone-I	Zone-II	Zone-III	Zone-IV	
10	**100**	100	100	100	100	The Sample Conforms to Grading Zone-II
4.75	**96.35**	90-100	90-100	90-100	95-100	
2.36	**79.3**	60-95	75-100	85-100	95-100	
1.18	**64.20**	30-70	55-90	75-100	90-100	
600.mic	**43.50**	15-34	35-59	60-79	80-100	
300.mic	**25.9**	5-20	8-30	12-40	15-50	
150.mic	**8.5**	0-20	0-20	0-20	0-15	

Remarks: the fine aggregate conforms to specification of zone II.

Prepared by Checked by Approved by

Nez Infratech Pvt. Ltd.

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CIN:U70100KA2015PTC084544, PAN:AAFCN1036R, GSTIN 29AAFCN1036R1ZZ

QUALITY TEST REPORT ON COARSE AGGREGATE

atech Private Limited
Cineering Consultants
CIDC Regd No 220929
CIDC
No.1, 2nd Floor, Arcade, Ittamadu Main Road, Arehalli, Subramanyapura Post, Bengaluru - 560061
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CIN:U70100KA2044, PAN:AAFCN1036R, GSTIN 29AAFCN1036R1ZZ

Client	BRUHATH BENGALURU MAHANAGARA PALIKE (BBMP) Road Infrastructure – Dasarahalli Division
Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample on	Coarse aggregates
Technices	IS: 2386 Part -1

SEIVE ANALYSIS OF COARSE AGGREGATE

Section of Lab : NEZ INFRATECH PRIVATE LIMITED
No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061

Source : Coarse Aggregate

Date of : 18-09-2021 Total Wt. of Sample : 3000gm

IS Sieve Size, mm	Wt. Retained (g)	% of Wt. Retained	% Cumulative Wt. Retained	% Passing	Specified % of passing
25	0	0	0	**100**	100
20	75	2.5	2.5	**97.5**	85-100
10	813	93.76	96.26	**3.74**	0-20
4.75	92	3.06	99.32	**0.68**	0-5
Pan	20	0.68	100	**0**	

Remarks: ed percentage passing is within the specified limits.

Prepared

Checked by

Approved by

Nez Infratech Pvt. Ltd.

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ರಸ್ತೆ ಮೂಲಭೂತ ಸೌಕರ್ಯಗಳು, (ದಾಸರಹಳ್ಳಿ ವಿಭಾಗ)
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
ಬೆಂಗಳೂರು - 57

NEZ Infratech Private Limited
Civil Engineering Consultants
CIDC Regd No 220929
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CIN:U70100KA2015PTC084544, PAN:AAFCN1036R, GSTIN 29AAFCN1036R1ZZ

Client	BRUHATH BENGALURU MAHANAGARA PALIKE (BBMP) Road Infrastructure – Dasarahalli Division
Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	Coarse aggregates
Technical References	IS: 2386 Part -1

SEIVE ANALYSIS OF COARSE AGGREGATE

Section/ Location of Lab : NEZ INFRATECH PRIVATE LIMITED
No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061

Source of Material : Coarse Aggregate

Date of Testing : 18-09-2021 Total Wt. of Sample : 3000gm

IS Sieve Size, mm	Wt. Retained (g)	% of Wt. Retained	% Cumulative Wt. Retained	% Passing	Specified % of passing
25	0	0	0	**100**	100
20	75	2.5	2.5	**97.5**	85-100
10	2813	93.76	96.26	**3.74**	0-20
4.75	92	3.06	99.32	**0.68**	0-5
Pan	20	0.68	100	**0**	

Remarks: the obtained percentage passing is within the specified limits.

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ಬೆಂಗಳೂರು - 92

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Client	BRUHATH BENGALURU MAHANAGARA PALIKE (BBMP) Road Infrastructure – Dasarahalli Division
Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	Coarse aggregates
Technical References	IS: 2386 Part -1

FLAKINESS INDEX AND ELONGATION INDEX (IS:2386 PART-I)

Section/ Location of Lab : NEZ INFRATECH PRIVATE LIMITED
No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061

Type of Material : Coarse Aggregate

Date of Testing : 18-09-2021 Total Wt. of Sample : 6000gm

IS Sieve Size, mm		Total Weight of Aggregate taken (g)	Weight of aggregate Retained on sieve(g)	Wt. of flaky Aggregates (g)	Wt. of Retained Aggregates on flaky(g)	Wt. of Elongated Aggregates (g)
Passing	Retained					
25	20	6000	3098	482	2674	186
20	16		1850	231	1619	168
16	12.5		585	118	472	84
12.5	10		329	92	238	74
10	6.3		110	36	75	24
Total (gm)			5972	959	5078	536

Flakiness Index = 959/59 72= **0.16** Elongation Index = 536/5078 = **0.105**

Combined Flakiness and Elongation Indices = (0.16+0.105)*100 = **26.5 %**

Remarks: The obtained combined flakiness and elongation index is less than 35% as specified in MORT&H.

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Client	BRUHATH BENGALURU MAHANAGARA PALIKE (BBMP) Road Infrastructure – Dasarahalli Division
Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	Coarse aggregates
Technical References	IS: 2386 Part -1

FLAKINESS INDEX AND ELONGATION INDEX (IS:2386 PART-I)

Section/ Location of Lab : NEZ INFRATECH PRIVATE LIMITED No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061

Type of Material : Coarse Aggregate

Date of Testing : 18-09-2021 Total Wt. of Sample : 6000gm

IS Sieve Size, mm		Total Weight of Aggregate taken (g)	Weight of aggregate Retained on sieve(g)	Wt. of flaky Aggregates (g)	Wt. of Retained Aggregates on flaky(g)	Wt. of Elongated Aggregates (g)
Passing	Retained					
25	20	6000	3130	474	2656	195
20	16		1790	245	1545	173
16	12.5		590	124	466	92
12.5	10		350	89	261	82
10	6.3		112	42	70	28
Total (gm)			5972	974	4998	570

Flakiness Index = 974/5972 = **0.163** Elongation Index = 570/4998 = **0.12**

Combined Flakiness and Elongation Indices = (0.163+0.12)*100 = **28.3 %**

Remarks: The obtained combined flakiness and elongation index is less than 35% as specified in MORT&H.

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CIN:U70100KA2015PTC084544, PAN:AAFCN1036R, GSTIN 29AAFCN1036R1ZZ

Client	BRUHATH BENGALURU MAHANAGARA PALIKE (BBMP) Road Infrastructure – Dasarahalli Division
Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	Coarse aggregates
Technical References	IS: 2386 Part -IV

AGGREGATE IMPACT VALUE
(IS:2386 PART-IV)

Section/ Location of Lab : NEZ INFRATECH PRIVATE LIMITED
No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061

Type of Material : Coarse Aggregate Date of Testing : 18-09-2021

Total Wt. of Sample : 6000gm

Description	Symbol	Unit	Determinations		
			1	2	3
Weight of aggregate passing through IS Sieve 12.5mm & retained on 10mm	W1	g	335	336	332
Weight of fraction retained on 2.36 mm IS Sieve	W2	g	270	267	268
Weight of fraction passing through 2.36 mm IS Sieve	W3=W1-W2	g	65	69	64
Aggregate Impact Value	(W3/W1)X100	%	19.40	20.53	19.3
Average Aggregate Impact Value		%	19.74		

Remarks: the aggregate impact value obtained is lesser than 30% as specified in MORT&H

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ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
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Client	BRUHATH BENGALURU MAHANAGARA PALIKE (BBMP) Road Infrastructure – Dasarahalli Division
Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	Coarse aggregates
Technical References	IS: 2386 Part -IV

AGGREGATE IMPACT VALUE (IS:2386 PART-IV)

Section/ Location of Lab : NEZ INFRATECH PRIVATE LIMITED
No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061

Type of Material : Coarse Aggregate Date of Testing : 18-09-2021

Total Wt. of Sample : 6000gm

Description	Symbol	Unit	Determinations		
			1	2	3
Weight of aggregate passing through IS Sieve 12.5mm & retained on 10mm	W1	g	336	338	334
Weight of fraction retained on 2.36 mm IS Sieve	W2	g	266	273	270
Weight of fraction passing through 2.36 mm IS Sieve	W3=W1-W2	g	70	65	64
Aggregate Impact Value	(W3/W1)X100	%	20.8	19.2	19.2
Average Aggregate Impact Value		%	19.7		

Remarks: the aggregate impact value obtained is lesser than 30% as specified in MORT&H.

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ಬೆಂಗಳೂರು - 02

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Client	BRUHATH BENGALURU MAHANAGARA PALIKE (BBMP) Road Infrastructure – Dasarahalli Division
Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	Coarse aggregates
Technical References	IS: 2386, IS: 383 - 2016 & MORT&H Specification Vth Revision - 2013.

SOUNDNESS TEST OF COARSE AGGREGATES

Sl. No.	Test Conducted	Test Result	Test Confirms to IS 2386(Part I to IV) - 1963(R.A on 2007) & Requirements as per IS: 383-2016 & M.o.R.T.H Specification, Vth Revision - 2013.
1	i) When tested with Sodium Sulphate, %	0.93	Not more than 12%
	ii) When tested with Magnesium Sulphate, %	1.1	Not more than 18%

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ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
ಬೆಂಗಳೂರು - ೫೭

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CIN:U70100KA2015PTC084544, PAN:AAFCN1036R, GSTIN 29AAFCN1036R1ZZ

COMPRESSIVE STRENGTH TEST REPORT ON CONCRETE CUBES

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Client	BRUHATH BENGALURU MAHANAGARA PALIKE (BBMP) Road Infrastructure – Dasarahalli Division
Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	Concrete cubes for drain raft near Ashok college.
Technical References	IS: 516-2006

COMPRESSIVE STRENGTH OF CONCRETE CUBES (IS:516-2006)

Section/ Location of Lab	:	NEZ INFRATECH PRIVATE LIMITED No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061	
Grade of Concrete	:	M20	Date of Casting: 10-04-2022
Water-Cement Ratio	:	0.45	Date of Testing: 9-05-2022
Description of Cement	:	OPC - ACC Cement, 53- Grade	
Size of Concrete Cube	:	(150 x 150 x 150) mm	

Sl. No.	Age in Days	Weight (Kg)	Area of cube (mm^2)	Load at Failure (kN)	Compressive Strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	28	8.06	22500	468	20.8	**20.7**
2	28	8.09	22500	465	20.6	
3	28	8.00	22500	469	20.8	

Remarks: The Concrete Cubes achieved the required Compressive Strength for 28 days and passed the test.

Prepared by Checked by Approved by

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Client	BRUHATH BENGALURU MAHANAGARA PALIKE (BBMP) Road Infrastructure – Dasarahalli Division
Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	Concrete cubes for drain raft near Police station.
Technical References	IS: 516-2006

COMPRESSIVE STRENGTH OF CONCRETE CUBES (IS:516-2006)

Section/ Location of Lab : NEZ INFRATECH PRIVATE LIMITED No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061

Grade of Concrete : M20 Date of Casting: 15-05-2022

Water-Cement Ratio : 0.45 Date of Testing: 14-06-2022

Description of Cement : OPC - ACC Cement, 53- Grade

Size of Concrete Cube : (150 x 150 x 150) mm

Sl. No.	Age in Days	Weight (Kg)	Area of cube (mm^2)	Load at Failure (kN)	Compressive Strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	28	8.05	22500	471	20.9	**21.06**
2	28	7.9	22500	475	21.1	
3	28	8.10	22500	476	21.2	

Remarks: Remarks: The Concrete Cubes achieved the required Compressive Strength for 28 days.

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ಬೆಂಗಳೂರು-560073

Nez Infratech Pvt. Ltd.

Prepared by Checked by Approved by

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CIN:U70100KA2015PTC084544, PAN:AAFCN1036R, GSTIN 29AAFCN1036R1ZZ

Client	BRUHATH BENGALURU MAHANAGARA PALIKE (BBMP) Road Infrastructure – Dasarahalli Division
Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	Concrete cubes for drain raft near Vishveshwara Layout.
Technical References	IS: 516-2006

COMPRESSIVE STRENGTH OF CONCRETE CUBES (IS:516-2006)

Section/ Location of Lab : NEZ INFRATECH PRIVATE LIMITED No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061

Grade of Concrete : M20 Date of Casting: 02-05-2022

Water-Cement Ratio : 0.45 Date of Testing: 01-06-2022

Description of Cement : OPC - ACC Cement, 53- Grade

Size of Concrete Cube : (150 x 150 x 150) mm

Sl. No.	Age in Days	Weight (Kg)	Area of cube (mm^2)	Load at Failure (kN)	Compressive Strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	28	8.11	22500	478	21.2	21.3
2	28	8.05	22500	482	21.4	
3	28	8.10	22500	485	21.5	

Remarks: The Concrete Cubes achieved the required Compressive Strength for 28 days.

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ಬೆಂಗಳೂರು - 02

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Client	BRUHATH BENGALURU MAHANAGARA PALIKE (BBMP) Road Infrastructure – Dasarahalli Division
Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	Concrete cubes for drain wall at Ashok college.
Technical References	IS: 516-2006

COMPRESSIVE STRENGTH OF CONCRETE CUBES (IS:516-2006)

Section/ Location of Lab : NEZ INFRATECH PRIVATE LIMITED No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061

Grade of Concrete : M20 Date of Casting: 14-04-2022

Water-Cement Ratio : 0.45 Date of Testing: 13-05-2022

Description of Cement : OPC - ACC Cement, 53- Grade

Size of Concrete Cube : (150 x 150 x 150) mm

Sl. No.	Age in Days	Weight (Kg)	Area of cube (mm^2)	Load at Failure (kN)	Compressive Strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	28	7.9	22500	475	21.1	21.2
2	28	8.05	22500	476	21.15	
3	28	8.10	22500	479	21.3	

Remarks: The Concrete Cubes achieved the required Compressive Strength for 28 days.

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NEZ Infratech Private Limited
Civil Engineering Consultants
CIDC Regd No 220929
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CIN:U70100KA2015PTC084544, PAN:AAFCN1036R, GSTIN 29AAFCN1036R1ZZ

Client	BRUHATH BENGALURU MAHANAGARA PALIKE (BBMP) Road Infrastructure – Dasarahalli Division
Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	Concrete cubes for drain wall near Vishveswara Layout.
Technical References	IS: 516-2006

COMPRESSIVE STRENGTH OF CONCRETE CUBES
(IS:516-2006)

Section/ Location of Lab : NEZ INFRATECH PRIVATE LIMITED
No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061

Grade of Concrete : M20 Date of Casting: 04-05-2022

Water-Cement Ratio : 0.45 Date of Testing: 02-06-2022

Description of Cement : OPC - ACC Cement, 53- Grade

Size of Concrete Cube : (150 x 150 x 150) mm

Sl. No.	Age in Days	Weight (Kg)	Area of cube (mm^2)	Load at Failure (kN)	Compressive Strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	28	7.99	22500	482	21.4	21.5
2	28	8.0	22500	489	21.7	
3	28	8.12	22500	485	21.5	

Remarks: The Concrete Cubes achieved the required Compressive Strength for 28 days.

Prepared by Checked by Approved by

NEZ Infratech Pvt. Ltd.

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಮೂಲಭೂತ ಸೌಕರ್ಯಗಳು, (ದಾಸರಹಳ್ಳಿ ವಿಭಾಗ)
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Client	BRUHATH BENGALURU MAHANAGARA PALIKE (BBMP) Road Infrastructure – Dasarahalli Division
Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	Concrete cubes for drain wall at police station.
Technical References	IS: 516-2006

COMPRESSIVE STRENGTH OF CONCRETE CUBES (IS:516-2006)

Section/ Location of Lab	:	NEZ INFRATECH PRIVATE LIMITED No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061	
Grade of Concrete	:	M20	Date of Casting: 17-05-2022
Water-Cement Ratio	:	0.45	Date of Testing: 16-06-2021
Description of Cement	:	OPC - ACC Cement, 53- Grade	
Size of Concrete Cube	:	(150 x 150 x 150) mm	

Sl. No.	Age in Days	Weight (Kg)	Area of cube (mm^2)	Load at Failure (kN)	Compressive Strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	28	8.12	22500	470	20.9	21.2
2	28	8.06	22500	477	21.2	
3	28	8.00	22500	483	21.5	

Remarks: The Concrete Cubes achieved the required Compressive Strength for 28 days.

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Client	BRUHATH BENGALURU MAHANAGARA PALIKE (BBMP) Road Infrastructure – Dasarahalli Division
Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	Concrete cubes for deck slab at Ashok college.
Technical References	IS: 516-2006

COMPRESSIVE STRENGTH OF CONCRETE CUBES (IS:516-2006)

Section/ Location of Lab	:	NEZ INFRATECH PRIVATE LIMITED No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061	
Grade of Concrete	:	M20	Date of Casting: 16-05-2022
Water-Cement Ratio	:	0.45	Date of Testing: 17-05-2022
Description of Cement	:	OPC - ACC Cement, 53- Grade	
Size of Concrete Cube	:	(150 x 150 x 150) mm	

Sl. No.	Age in Days	Weight (Kg)	Area of cube (mm^2)	Load at Failure (kN)	Compressive Strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	28	7.99	22500	497	22.08	22.1
2	28	8.05	22500	492	21.8	
3	28	8.12	22500	505	22.4	

Remarks: The Concrete Cubes achieved the required Compressive Strength for 28 days.

Prepared by Checked by Approved by

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Client	BRUHATH BENGALURU MAHANAGARA PALIKE (BBMP) Road Infrastructure – Dasarahalli Division
Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	Concrete cubes for deck slab at Vishveshwara Layout.
Technical References	IS: 516-2006

COMPRESSIVE STRENGTH OF CONCRETE CUBES (IS:516-2006)

Section/ Location of Lab : NEZ INFRATECH PRIVATE LIMITED No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061

Grade of Concrete : M20 Date of Casting: 13-05-2022

Water-Cement Ratio : 0.45 Date of Testing: 12-06-2022

Description of Cement : OPC - ACC Cement, 53- Grade

Size of Concrete Cube : (150 x 150 x 150) mm

Sl. No.	Age in Days	Weight (Kg)	Area of cube (mm^2)	Load at Failure (kN)	Compressive Strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	28	8.00	22500	490	21.8	21.7
2	28	8.02	22500	485	21.5	
3	28	8.06	22500	491	21.8	

Remarks: The Concrete Cubes achieved the required Compressive Strength for 28 days.

Prepared by Checked by Approved by

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ಬೆಂಗಳೂರು-೫೬೦ ೦೬೧

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Client	BRUHATH BENGALURU MAHANAGARA PALIKE (BBMP) Road Infrastructure – Dasarahalli Division
Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	Concrete cubes for deck slab near police station.
Technical References	IS: 516-2006

COMPRESSIVE STRENGTH OF CONCRETE CUBES (IS:516-2006)

Section/ Location of Lab	:	NEZ INFRATECH PRIVATE LIMITED No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061	
Grade of Concrete	:	M20	Date of Casting: 30-05-2022
Water-Cement Ratio	:	0.45	Date of Testing: 29-06-2022
Description of Cement	:	OPC - ACC Cement, 53- Grade	
Size of Concrete Cube	:	(150 x 150 x 150) mm	

Sl. No.	Age in Days	Weight (Kg)	Area of cube (mm^2)	Load at Failure (kN)	Compressive Strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	28	8.10	22500	506	22.5	22.2
2	28	7.96	22500	497	22.1	
3	28	8.00	22500	493	21.9	

Remarks: The Concrete Cubes achieved the required Compressive Strength for 28 days.

Nez Infratech Pvt. Ltd

Checked by

Approved by

ಸಾಮಾನ್ಯ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಕ್ಷೇ ಮೂಲಭೂತ ಸೌಕರ್ಯಗಳು, (ದಾಸರಹಳ್ಳಿ ವಿಭಾಗ)
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Client	BRUHATH BENGALURU MAHANAGARA PALIKE (BBMP) Road Infrastructure – Dasarahalli Division
Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	Concrete cubes for parapet wall of SSM culvert.
Technical References	IS: 516-2006

COMPRESSIVE STRENGTH OF CONCRETE CUBES (IS:516-2006)

Section/ Location of Lab : NEZ INFRATECH PRIVATE LIMITED
No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061

Grade of Concrete : M20 Date of Casting: 24-04-2022

Water-Cement Ratio : 0.45 Date of Testing: 23-05-2022

Description of Cement : OPC - ACC Cement, 53- Grade

Size of Concrete Cube : (150 x 150 x 150) mm

Sl. No.	Age in Days	Weight (Kg)	Area of cube (mm^2)	Load at Failure (kN)	Compressive Strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	28	8.1	22500	487	21.6	**21.43**
2	28	8.0	22500	479	21.3	
3	28	8.1	22500	482	21.4	

Remarks: The Concrete Cubes achieved the required Compressive Strength for 28 days.

Prepared by Checked by Approved by

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Client	BRUHATH BENGALURU MAHANAGARA PALIKE (BBMP) Road Infrastructure – Dasarahalli Division
Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	Concrete cubes for retaining wall.
Technical References	IS: 516-2006

COMPRESSIVE STRENGTH OF CONCRETE CUBES (IS:516-2006)

Section/ Location of Lab : NEZ INFRATECH PRIVATE LIMITED No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061

Grade of Concrete : M20 Date of Casting: 10-04-2022

Water-Cement Ratio : 0.45 Date of Testing: 09-05-2022

Description of Cement : OPC - ACC Cement, 53- Grade

Size of Concrete Cube : (150 x 150 x 150) mm

Sl. No.	Age in Days	Weight (Kg)	Area of cube (mm^2)	Load at Failure (kN)	Compressive Strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	28	8.1	22500	491	21.8	21.6
2	28	8.0	22500	483	21.5	
3	28	8.1	22500	486	21.6	

Remarks: The Concrete Cubes achieved the required Compressive Strength for 28 days.

Prepared by Checked by Approved by

Nez Infratech Pvt. Ltd.

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CIN:U70100KA2015PTC084544, PAN:AAFCN1036R, GSTIN 29AAFCN1036R1ZZ

QUALITY TEST REPORT ON STEEL

Client	BRUHATH BENGALURU MAHANAGARA PALIKE (BBMP) Road Infrastructure – Dasarahalli Division
Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	Tata TMT Steel bars
Technical References	IS 1786-2008

TEST REPORT ON REINFORCEMENT STEEL (IS 1786-2008)

Section/ Location of Lab	:	NEZ INFRATECH PRIVATE LIMITED No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061
Grade of Steel	:	Fe 550
Description of Steel	:	TATA TMT STEEL
Date of Testing	:	20-09-2021

		10mm		12mm		16mm	
Sl. No.	**Details**	**Test Results**	**Min Req. as per IS 1786-2008**	**Test Results**	**Min Req. as per IS 1786-2008**	**Test Results**	**Min Req. as per IS 1786-2008**
1	Dia of bar	10mm	10mm	12mm	12mm	16mm	16mm
2	Weight per meter Length Kg/m	0.626	0.567	0.9	0.834	1.58	1.483
3	Yield Stress fy, N/mm2	665	550	647	550	656	550
4	Percentage of Elongation, %	20.0	10	20.6	10	20.2	10
5	Ultimate Tensile Strength N/mm2	715	585	697	585	704	585
6	Re Bend test	OK		OK		OK	

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CIN:U70100KA2015PTC084544, PAN:AAFCN1036R, GSTIN 29AAFCN1036R1ZZ

20mm		25mm	
Test Results	**Min Req. as per IS 1786-2008**	**Test Results**	**Min Req. as per IS 1786-2008**
20mm	20mm	25mm	25mm
2.483	2.366	3.865	3.697
665	550	643	550
19.5	10	21	10
720	585	701	585
OK		OK	

CHEMICAL PROPERTIES OF STEEL

Section/ Location of Lab	:	NEZ INFRATECH PRIVATE LIMITED No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061
Grade of Steel	:	Fe 550
Description of Steel	:	TATA TMT STEEL
Date of Testing	:	20-09-2021

Sl. No.	Name of the Constituents	10mm	12mm	16mm	20mm	25mm	Requirements as per IS 1786-2008
1	Carbon, % max	0.143	0.175	0.167	0.16	0.182	<0.3
2	Sulphur, % max	0.026	0.022	0.025	0.028	0.03	<0.055
3	Phosphorous, % max	0.036	0.034	0.03	0.028	0.036	<0.05
4	Sulphur,& Phosphorous, % max	0.06	0.057	0.054	0.052	0.061	<0.1

Remarks: the physical and chemical test results obtained are within the permissible limits.

Prepared by Checked by Approved by

Nez Infratech Pvt. Ltd

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QUALITY TEST REPORT ON BITUMEN (VG30)

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Client	BRUHATH BENGALURU MAHANAGARA PALIKE (BBMP) Road Infrastructure – Dasarahalli Division
Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	VG30 Bitumen
Technical References	IS: 73-2019

PENETRATION TEST
(IS: 1203-1978)

Section/ Location of Lab	:	NEZ INFRATECH PRIVATE LIMITED No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061
Description	:	Bitumen VG30
Date of Testing	:	26-03-2022

Readings	Test number			
	1	2	3	Average
Penetrometer dial readings				
Initial (mm)	0	0	0	
Final (mm)	45	47	48	
Penetration value (mm)	45	47	48	**46.7**

Remarks: The obtained bitumen penetration is greater than 45mm as specified in IS: 73-2019.

Prepared by Checked by Approved by

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Client	BRUHATH BENGALURU MAHANAGARA PALIKE (BBMP) Road Infrastructure – Dasarahalli Division
Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	VG30 Bitumen
Technical References	IS: 73-2019

SOFTENING POINT TEST
(IS: 1205-1978)

Section/ Location of Lab	:	NEZ INFRATECH PRIVATE LIMITED No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061
Description	:	Bitumen VG30
Date of Testing	:	26-03-2022

Test property	Sample no. 1		Sample no. 2		Average value
	Ball no.1		Ball no.2		
	1	2	3	4	
Temperature (^{0}C) at which sample touches bottom plate	55	54	55	57	**55.25**

Remarks: The obtained bitumen softening point is greater than 47 ^{0}C as specified in IS: 73-2019

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Client	BRUHATH BENGALURU MAHANAGARA PALIKE (BBMP) Road Infrastructure – Dasarahalli Division
Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	VG30 Bitumen
Technical References	IS: 73-2019

DUCTILITY TEST
(IS: 1208-1978)

Section/ Location of Lab	:	NEZ INFRATECH PRIVATE LIMITED No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061
Description	:	Bitumen VG30
Date of Testing	:	26-03-2022

Sl. No.	Test property	Briquette number			Average value
		1	2	3	
1	Ductility value (cm)	110	115	112	**112**

Remarks: The obtained bitumen ductility value is greater than 40 cm as specified in IS : 73-2019

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Client	BRUHATH BENGALURU MAHANAGARA PALIKE (BBMP) Road Infrastructure – Dasarahalli Division
Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	VG30 Bitumen
Technical References	IS: 73-2019

FLASH POINT TEST
(IS: 1209-1978)

Section/ Location of Lab	:	NEZ INFRATECH PRIVATE LIMITED No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061
Description	:	Bitumen VG30
Date of Testing	:	26-03-2022

Sl. No.	Test property	Sample number			Average value
		1	2	3	
1	Flash point (^{0}C)	315	317	314	**315**

Remarks: The obtained bitumen flash point value is greater than 220 ^{0}C as specified in IS: 73-2019

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QUALITY TEST REPORT ON GRANUALR SUB-BASE (GSB)

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Client	BRUHATH BENGALURU MAHANAGARA PALIKE (BBMP) Road Infrastructure – Dasarahalli Division
Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	Granular sub-base (GSB)
Technical References	As per Table 400-1 in MORT&H 5th revision

SIEVE ANALYSIS ON GSB (TABLE 400.1)

Section/ Location of Lab : NEZ INFRATECH PRIVATE LIMITED No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061

Grade : Grading V

Description : Granular sub-base Total wt. of sample : 13200 gm

Date of Testing : 20-09-2021

IS Sieve Size inmm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specified Limits
75.0	0	0	0	100	100
53.0	285	285	2.16	97.84	80-100
26.5	2522	2807	21.26	78.74	55-90
9.5	3215	6022	45.62	54.38	35-65
4.75	2865	8887	67.32	32.68	25-50
2.36	1700	10587	80.2	19.8	10-20
0.85	1500	12087	91.57	8.43	2-10
0.425	750	12837	97.25	2.75	0-5
0.075	-	-	-	-	-

Remarks : The obtained gradation satisfies the requirement mentioned in Table 400-1 of MORT&H

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Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	Granular sub-base (GSB)
Technical References	IS: 2386 (Part 4)

AGGRAGTE IMPACT VALUE
IS: 2386 (Part 4)

Section/ Location of Lab	:	NEZ INFRATECH PRIVATE LIMITED No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061
Grade	:	Grading V
Description	:	Granular sub-base Total wt. of sample : 6000 gm
Date of Testing	:	20-09-2021

Description	Symbol	Unit	Determinations		
			1	2	3
Weight of aggregate passing through IS Sieve 12.5mm & retained on 10mm	W1	g	378	380	383
Weight of fraction retained on 2.36 mm IS Sieve	W2	g	252	250	251
Weight of fraction passing through 2.36 mm IS Sieve	W3=W1-W2	g	126	130	132
Aggregate Impact Value	(W3/W1)X100	%	33.1	32.9	34.5
Average Aggregate Impact Value		%	33.5		

Remarks : The obtained AIV is lesser than 40% as specified in Table 400-2 of MORT&H

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Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	Granular sub-base (GSB)
Technical References	IS: 2720 (Part 5)

LIQUID LIMIT
IS: 2720 (Part 5)

Section/ Location of Lab	:	NEZ INFRATECH PRIVATE LIMITED No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061
Grade	:	Grading V
Description	:	Granular sub-base Total wt. of sample : 6000 gm
Date of Testing	:	20-09-2021

Sl No.	1	2	3	4
Container No.	A	B	C	D
No. of blows	42	33	23	14
Weight of container (gm)	14.2	14.4	13.6	13
Weight of wet sample+ container (gm)	26.2	25.4	25.9	26.7
Weight of dry sample+ container (gm)	24.3	23.5	23.9	24.8
Water content (%)	19.2	21	23	27.2
W.C at 25 no. of blows (%)	22.5			

Remarks: The obtained liquid limit is lesser than 25% as specified in Table 400-2 in MORT&H. The plastic limit is obtained as non-plastic.

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QUALITY TEST REPORT ON WET MIX MACADAM (WMM)

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Client	BRUHATH BENGALURU MAHANAGARA PALIKE (BBMP) Road Infrastructure – Dasarahalli Division
Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	Wet Mix Macadam (WMM)
Technical References	As per Table 400-13 in MORT&H 5th revision

SIEVE ANALYSIS ON WMM
(TABLE 400.13)

Section/ Location of Lab : NEZ INFRATECH PRIVATE LIMITED
No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061

Description : Wet mix macadam Total wt. of sample : 13558 gm

Date of Testing : 22-09-2021

IS Sieve Size inmm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specified Limits
53	0	0	0	100	100
45	563	563	4.2	95.8	95-100
22.4	4315	4878	36.0	64	60-80
11.2	2749	7627	56.3	43.7	40-60
4.75	1865	9492	70	30	25-40
2.36	1481	10973	80.9	19.1	15-30
0.6	1268	12241	90.3	9.7	8-22
0.075	987	13228	97.6	2.4	0-5

Remarks : The obtained gradation satisfies the requirement mentioned in Table 400-13 of MORT&H

Prepared by Checked by Approved by

NEZ Infratech Pvt. Ltd.

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Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	Wet mix macadam (WMM)
Technical References	IS: 2386 (Part 4)

AGGRAGTE IMPACT VALUE
IS: 2386 (Part 4)

Section/ Location of Lab : NEZ INFRATECH PRIVATE LIMITED
No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061

Description : Wet mix macadam Total wt. of sample : 6000 gm

Date of Testing : 22-09-2021

Description	Symbol	Unit	Determinations		
			1	2	3
Weight of aggregate passing through IS Sieve 12.5mm & retained on 10mm	W1	g	450	462	458
Weight of fraction retained on 2.36 mm IS Sieve	W2	g	350	361	359
Weight of fraction passing through 2.36 mm IS Sieve	W3=W1-W2	g	100	101	99
Aggregate Impact Value	(W3/W1)X100	%	22.22	21.9	21.6
Average Aggregate Impact Value		%	**21.9**		

Remarks : The obtained AIV is lesser than 30% as specified in Table 400-12 of MORT&H

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Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	Wet mix macadam (WMM)
Technical References	IS: 2386 (Part 1)

FLAKINESS INDEX AND ELONGATION INDEX
(IS: 2386 (Part 1))

Section/ Location of Lab : NEZ INFRATECH PRIVATE LIMITED
No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061

Description : Wet mix macadam Total wt. of sample : 6000 gm

Date of Testing : 22-09-2021

IS Sieve Size, mm		Total Weight of Aggregate taken (g)	Weight of aggregate Retained on sieve(g)	Wt. of flaky Aggregates (g)	Wt. of Retained Aggregates on flaky(g)	Wt. of Elongated Aggregates (g)
Passing	Retained					
25	20	6000	3145	474	2671	215
20	16		1787	245	1542	198
16	12.5		575	155	420	103
12.5	10		343	102	241	82
10	6.3		120	63	57	28
Total (gm)			5970	1039	4931	626

Flakiness Index = 1039/59 70= **0.174** Elongation Index = 626/4931 = **0.127**

Combined Flakiness and Elongation Indices = (0.174+0.127)*100 = **30.1 %**

Remarks: The obtained combined flakiness and elongation index is lesser than 35% as specified in Table 400-12 of MORT&H.

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QUALITY TEST REPORT ON DENSE BITUMINIOUS MACDAM (DBM)

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Client	BRUHATH BENGALURU MAHANAGARA PALIKE (BBMP) Road Infrastructure – Dasarahalli Division
Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	Dense Bituminous Macadam (DBM)
Technical References	As per Table 500-10 of MORT&H

SIEVE ANALYSIS ON DBM
(Table 500-10)

Section/ Location of Lab : NEZ INFRATECH PRIVATE LIMITED
No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061

Description : Dense bituminous macadam Total wt. of sample : 6000 gm

Date of Testing : 25-03-2022

IS Sieve Size in mm	Weight Retained (gm)	% weight retained	Cumulative % retained	% Passing	Specified Limits
37.5	0	0	0	100	100
26.5	469	3.2	3.2	96.76	90-100
19	2292	15.8	19.07	80.93	71-95
13.2	2284	15.8	34.85	65.15	56-80
4.75	2492	17.2	52.07	47.93	38-54
2.36	1765	12.2	64.26	35.74	28-42
0.3	2415	16.7	80.95	19.05	7-21
0.075	1896	13.1	94.04	5.96	2-8

Remarks : The obtained gradation satisfies the requirement mentioned in Table 500-10 of MORT&H

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CIN:U70100KA2015PTC084544, PAN:AAFCN1036R, GSTIN 29AAFCN1036R1ZZ

Client	BRUHATH BENGALURU MAHANAGARA PALIKE (BBMP) Road Infrastructure – Dasarahalli Division
Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	Dense Bituminous Macadam (DBM)
Technical References	IS: 2386 (Part 4)

AGGRAGTE IMPACT VALUE
IS: 2386 (Part 4)

Section/ Location of Lab : NEZ INFRATECH PRIVATE LIMITED
No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061

Description : Dense bituminous macadam Total wt. of sample : 6000 gm

Date of Testing : 25-03-2022

Description	Symbol	Unit	Determinations		
			1	2	3
Weight of aggregate passing through IS Sieve 12.5mm & retained on 10mm	W1	g	370	375	376
Weight of fraction retained on 2.36 mm IS Sieve	W2	g	296	293	295
Weight of fraction passing through 2.36 mm IS Sieve	W3=W1-W2	g	80	82	84
Aggregate Impact Value	(W3/W1)X100	%	20.0	22.6	21.5
Average Aggregate Impact Value		%	**21.4**		

Remarks : The obtained AIV is lesser than 27% as specified in Table 500-8 of MORT&H

Prepared by Checked by Approved by

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ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
ಬೆಂಗಳೂರು - 02.

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Client	BRUHATH BENGALURU MAHANAGARA PALIKE (BBMP) Road Infrastructure – Dasarahalli Division
Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	Dense Bituminous Macadam (DBM)
Technical References	IS: 2386 (Part 1)

FLAKINESS INDEX AND ELONGATION INDEX
(IS: 2386 (Part 1))

Section/ Location of Lab : NEZ INFRATECH PRIVATE LIMITED
No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061

Description : Dense Bituminous Macadam Total wt. of sample : 6000 gm

Date of Testing : 25-03-2022

IS Sieve Size, mm		Total Weight of Aggregate taken (g)	Weight of aggregate Retained on sieve(g)	Wt. of flaky Aggregates (g)	Wt. of Retained Aggregates on flaky(g)	Wt. of Elongated Aggregates (g)
Passing	Retained	6000				
25	20		3065	476	2589	215
20	16		1742	247	1495	198
16	12.5		540	157	383	103
12.5	10		333	105	228	82
10	6.3		120	66	54	33
Total (gm)			5800	1051	4749	631

Flakiness Index = 1050/5800= **0.18** Elongation Index =631 /4749 = **0.13**

Combined Flakiness and Elongation Indices = (0.18+0.13)*100 = **31%**

Remarks: The obtained combined flakiness and elongation index is lesser than 35% as specified in Table 500-8 of MORT&H.

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Client	BRUHATH BENGALURU MAHANAGARA PALIKE (BBMP) Road Infrastructure – Dasarahalli Division
Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	Dense Bituminous Macadam (DBM)
Technical References	IS: 2386 (Part 3)

SPECIFIC GRAVITY AND WATER ABSORPTION (IS: 2386 (Part 3))

Section/ Location of Lab : NEZ INFRATECH PRIVATE LIMITED No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061

Description : Dense Bituminous Macadam Total wt. of sample : 6000 gm

Date of Testing : 25-03-2022

Sl. No.	Details	Test Number			Average
		1	2	3	
1	Weight of aggregate suspended in water with the basket W_1 g	2022	2018	2028	
2	Weight of basket suspended in water W_2 g	750	750	750	
3	Weight of saturated aggregate in Water $(W_1 - W_2) = W_s$ g	1272	1268	1278	
4	Weight of saturated surface dry aggregate in air W_3 g	2014	2016	2018	
5	Weight of water equal to the volume of the aggregate $(W_3 - W_S)$ g	742	748	740	
6	Weight of oven dried aggregate W_4 g	2006	2005	2004	
7	Specific Gravity $W_4/(W_3-W_S)$	2.7	2.689	2.71	2.697
8	Apparent Specific gravity $W_4/(W_4-W_S)$	2.733	2.72	2.76	2.738
9	Water Absorption $((W_3 -W_4)*100)/W_4$ (%)	0.4	0.55	0.7	0.55

Remarks : The obtained water absorption is lesser than 2% as specified in Table 500-8 of MORT&H.

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Client	BRUHATH BENGALURU MAHANAGARA PALIKE (BBMP) Road Infrastructure – Dasarahalli Division
Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	Prime coat
Technical References	As per clause 502 MORT&H

PRIME COAT TEST
(clause 502)

Section/ Location of Lab	:	NEZ INFRATECH PRIVATE LIMITED No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061
Description	:	SS1 grade (IS: 8887)
Date of Testing	:	27-04-2022

Determination	Unit	Test No	
		1	2
Size of Plate	mt	0.45x0.45	0.45x0.45
Area of Plate (a)	Sq.m	0.2025	0.2025
Initial Wt. of empty Plate (b)	Kg	1.615	1.62
Final weight of plate after application ofprime /Tack Coat (c)	Kg	1.737	1.749
Weight of Prime/Tack Coat (d=c-b)	Kg	0.122	0.1290
Rate of spread of prime /tack coat	kg/Sq.m	0.60	0.637
Average	kg/Sq.m	**0.62**	

Remarks: The obtained rate of spraying of prime coat is between 0.7-1.0 kg/sqm. as specified in clause 502 MORT&H.

Prepared by Checked by Approved by

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CIN:U70100KA2015PTC084544, PAN:AAFCN1036R, GSTIN 29AAFCN1036R1ZZ

Client	BRUHATH BENGALURU MAHANAGARA PALIKE (BBMP) Road Infrastructure – Dasarahalli Division
Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	Dense Bituminous Macadam (DBM)
Technical References	As per Table 500-10

BITUMEN EXTRACTION
(As per Table 500-10)

Section/ Location of Lab	:	NEZ INFRATECH PRIVATE LIMITED No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061
Description	:	Dense Bituminous Macadam
Date of Testing	:	27-04-2022

Description	Trail 1	Trail 2
Weight of Mixture before Test, g	500	500
Weight of Mixture after Test, g	478	477.5
Weight of Bitumen Extracted, g. (corrected)	22	22.5
Bitumen content in %	4.4	4.5
Average %	**4.45**	
The extracted bitumen content was 4.45% which is more than the minimum bitumen content as mentioned in MORT&H Table 500-10.		

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IS Sieve Size inmm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Job mix gradation
37.5	0	0	0	100	100
26.5	21.5	21.5	4.3	95.7	90-100
19	49.7	71.2	14.24	85.76	71-95
13.2	68.3	139.5	27.9	72.1	56-80
4.75	98.2	237.7	47.54	52.46	38-54
2.36	76.2	313.9	62.78	37.22	28-42
0.3	102.3	416.2	83.24	16.76	7-21
0.075	45.1	461.3	92.26	7.74	2-8

IS Sieve Size inmm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Job mix gradation
37.5	0	0	0	100	100
26.5	23.6	23.6	4.72	95.28	90-100
19	49.1	72.7	14.54	85.46	71-95
13.2	68.9	141.6	28.32	71.68	56-80
4.75	97.4	239	47.8	52.2	38-54
2.36	78.7	317.7	63.54	36.46	28-42
0.3	99.8	417.5	83.5	16.5	7-21
0.075	45.2	462.7	92.54	7.46	2-8

Remarks: The obtained extraction tests results are within permissible values as per MORT&H Table 900-3 and the extracted bitumen content is 4.45% as per MORT&H Table 500-10.

Prepared by

Checked by

NEZ Infratech Pvt. Ltd. Jayanth

Approved by

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CIN:U70100KA2015PTC084544, PAN:AAFCN1036R, GSTIN 29AAFCN1036R1ZZ

Client	BRUHATH BENGALURU MAHANAGARA PALIKE (BBMP) Road Infrastructure – Dasarahalli Division
Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	Dense Bituminous Macadam (DBM)
Technical References	As per Table 900-3

MARSHAL STABILITY TEST
(As per MORT&H Table 500-11)

Section/ Location of Lab	:	NEZ INFRATECH PRIVATE LIMITED No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061
Description	:	Dense Bituminous Macadam
Date of Testing	:	27-04-2022

Sl No.	Description	Test Results 1	Tests Results 2	Requirements as per MORT&H table 500-11
1	Marshal Stability Kn	9.25	10.25	Min. 9 Kn
2	Marshal flow mm	2.25	3.56	2-4
3	Percentage air voids in mix	3.25	4.25	3-5
4	Percent Voids in mineral aggregates	11.25	12.25	11-13
5	Percentage voids filled with bitumen	66.25	67.58	65-75
6	Density g/cc	2.2	2.21	-

Remarks: The obtained Marshal Stability tests results are within permissible values as per Table 500-11 MORT&H.

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Nez Infratech Pvt. Ltd.

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QUALITY TEST REPORT ON BITUMINOUS CONCRETE (BC)

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CIN:U70100KA2015PTC084544, PAN:AAFCN1036R, GSTIN 29AAFCN1036R1ZZ

Client	BRUHATH BENGALURU MAHANAGARA PALIKE (BBMP) Road Infrastructure – Dasarahalli Division
Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	Bituminous concrete (BC) Grade 2
Technical References	As per Table 500-16 of MORT&H

SIEVE ANALYSIS ON BC
(IS: 2386 PART 1)

Section/ Location of Lab : NEZ INFRATECH PRIVATE LIMITED
No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061

Description : Bituminous concrete Total wt. of sample : 5300gm

Date of Testing : 27-03-2022

IS Sieve Size inmm	Weight Retained (gm)	% weight retained	Cumulative % retained	% Passing	SpecifiedLimits
19	0	0	0	100	100
13.2	372	7.01	7.01	92.99	90-100
9.5	710	13.4	20.41	79.59	70-88
4.75	1153	21.7	42.11	57.89	53-71
2.36	573	10.8	42.921	57.1	42-58
1.18	461	8.69	61.6	38.4	34-48
0.6	523	9.86	71.46	28.54	26-38
0.3	472	8.9	80.36	19.64	18-28
0.15	328	6.2	86.56	13.44	12-20
0.075	460	8.7	95.26	4.74	4-10

Remarks : The obtained gradation satisfies the requirement mentioned in Table 500-16 of MORT&H

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Client	BRUHATH BENGALURU MAHANAGARA PALIKE (BBMP) Road Infrastructure – Dasarahalli Division
Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	Bituminous concrete Grade 2
Technical References	IS: 2386 (Part 4)

AGGRAGTE IMPACT VALUE
IS: 2386 (Part 4)

Section/ Location of Lab : NEZ INFRATECH PRIVATE LIMITED
No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061

Description : Bituminous concrete Total wt. of sample : 6000 gm

Date of Testing : 27-03-2022

Description	Symbol	Unit	Determinations		
			1	2	3
Weight of aggregate passing through IS Sieve 12.5mm & retained on 10mm	W1	g	378	376	375
Weight of fraction retained on 2.36 mm IS Sieve	W2	g	297	290	294
Weight of fraction passing through 2.36 mm IS Sieve	W3=W1-W2	g	81	86	81
Aggregate Impact Value	(W3/W1)X100	%	21.4	22.8	21.6
Average Aggregate Impact Value		%	**21.9**		

Remarks : The obtained AIV is lesser than 24% as specified in Table 500-16 of MORT&H.

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ಬೆಂಗಳೂರು-56

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Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	Bituminous concrete Grade 2
Technical References	IS: 2386 (Part 1)

FLAKINESS INDEX AND ELONGATION INDEX
(IS: 2386 (Part 1))

Section/ Location of Lab : NEZ INFRATECH PRIVATE LIMITED
No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061

Description : Bituminous concrete Total wt. of sample : 6000 gm

Date of Testing : 27-03-2022

IS Sieve Size, mm		Total Weight of Aggregate taken (g)	Weight of aggregate Retained on sieve(g)	Wt. of flaky Aggregates (g)	Wt. of Retained Aggregates on flaky(g)	Wt. of Elongated Aggregates (g)
Passing	Retained					
25	20	6000	3072	481	2591	221
20	16		1758	252	1506	205
16	12.5		561	164	397	111
12.5	10		345	115	230	91
10	6.3		132	73	59	37
Total (gm)			5868	1085	4783	665

Flakiness Index = 1085/5868= **0.185** Elongation Index =665 /4783 = **0.139**

Combined Flakiness and Elongation Indices = (0.185+0.139)*100 = **32.4%**

Remarks : The obtained combined flakiness and elongation index is lesser than 35% as specified in Table 500-16 of MORT&H.

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Client	BRUHATH BENGALURU MAHANAGARA PALIKE (BBMP) Road Infrastructure – Dasarahalli Division
Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	Bituminous concrete Grade 2
Technical References	IS: 2386 (Part 3)

SPECIFIC GRAVITY AND WATER ABSORPTION
(IS: 2386 (Part 3))

Section/ Location of Lab : NEZ INFRATECH PRIVATE LIMITED
No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061

Description : Bituminous concrete Total wt. of sample : 6000 gm

Date of Testing : 27-03-2022

Sl. No.	Details	Test Number			Average
		1	2	3	
1	Weight of aggregate suspended in water with the basket W_1 g	2017	2014	2018	
2	Weight of basket suspended in water W_2 g	755	755	755	
3	Weight of saturated aggregate in Water $(W_1 - W_2) = W_s$ g	1262	1259	1263	
4	Weight of saturated surface dry aggregate in air W_3 g	2013	2015	2018	
5	Weight of water equal to the volume of the aggregate $(W_3 - W_S)$ g	751	756	755	
6	Weight of oven dried aggregate W_4 g	2002	2001	2003	
7	Specific Gravity W4/(W3-WS)	2.67	2.65	2.653	2.655
8	Apparent Specific gravity $W_4/(W_4-W_S)$	2.705	2.697	2.707	2.703
9	Water Absorption $((W_3 - W_4)*100)/W_4$ (%)	0.55	0.7	0.75	0.67

Remarks: The obtained water absorption is lesser than 2% as specified in Table 500-16 of MORT&H.

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Nez Infratech Pvt Ltd

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CIN:U70100KA2015PTC084544, PAN:AAFCN1036R, GSTIN 29AAFCN1036R1ZZ

Client	BRUHATH BENGALURU MAHANAGARA PALIKE (BBMP) Road Infrastructure – Dasarahalli Division
Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	Tack coat
Technical References	As per clause 503 MORT&H

TACK COAT TEST
(clause 503)

Section/ Location of Lab	:	NEZ INFRATECH PRIVATE LIMITED No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061
Description	:	VG10 (IS: 73)
Date of Testing	:	29-04-2022

Determination	Unit	Test No	
		1	2
Size of Plate	mt	0.45x0.45	0.45x0.45
Area of Plate (a)	Sq.m	0.2025	0.2025
Initial Wt. of empty Plate (b)	Kg	1.63	1.629
Final weight of plate after application ofprime /Tack Coat (c)	Kg	1.684	1.672
Weight of Prime/Tack Coat (d=c-b)	Kg	0.054	0.043
Rate of spread of prime /tack coat	kg/Sq.m	0.26	0.21
Average	kg/Sq.m	**0.235**	

Remarks: The obtained rate of spraying of prime coat is between 0.2-0.3 kg/sqm. as specified in clause 502 MORT&H.

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NEZ Infratech Pvt. Ltd.

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ರಸ್ತೆ ಮೂಲಭೂತ ಸೌಕರ್ಯಗಳು, (ದಾಸರಹಳ್ಳಿ ವಿಭಾಗ)
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
ಬೆಂಗಳೂರು - 02

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Client	BRUHATH BENGALURU MAHANAGARA PALIKE (BBMP) Road Infrastructure – Dasarahalli Division
Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	Bituminous concrete Grade 2
Technical References	As per Table 500-17

BITUMEN EXTRACTION
(As per Table 500-17)

Section/ Location of Lab	:	NEZ INFRATECH PRIVATE LIMITED No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061
Description	:	Bituminous concrete
Date of Testing	:	29-04-2022

Description	Trail 1	Trail 2
Weight of Mixture before Test, g	500	500
Weight of Mixture after Test, g	473	473
Weight of Bitumen Extracted, g. (corrected)	27	27
Bitumen content in %	5.4	5.4
Average %	**5.4**	
The extracted bitumen content was 5.4% which is more than minimum bitumen content as mentioned in MORT&H Table 500-17.		

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IS Sieve Size inmm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Job mix gradation
19	0	0	0	100	100
13.2	27.5	27.5	5.5	94.5	90-100
9.5	60.5	88	17.6	82.4	70-88
4.75	132	192.5	38.5	61.5	53-71
2.36	109	241	48.2	51.8	42-58
1.18	167.7	276.75	55.35	44.65	34-48
0.6	156.25	324	64.8	35.2	26-38
0.3	215.25	371.5	74.3	25.7	18-28
0.15	200.75	416	83.2	16.8	12-20
0.075	268.25	469	93.8	6.2	4-10

IS Sieve Size inmm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Job mix gradation
19	0	0	0	100	100
13.2	31	31	6.2	93.8	90-100
9.5	57	88	17.6	82.4	70-88
4.75	134.5	191.5	38.3	61.7	53-71
2.36	107.5	242	48.4	51.6	42-58
1.18	164	271.5	54.3	45.7	34-48
0.6	167	331	66.2	33.8	26-38
0.3	201	368	73.6	26.4	18-28
0.15	206	407	81.4	18.6	12-20
0.075	262.5	468.5	93.7	6.3	4-10

Remarks: The obtained extraction tests results are within permissible values as per Table 500-17 and the extracted bitumen content is 5.4% as per MORT&H Table 500-17.

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Client	BRUHATH BENGALURU MAHANAGARA PALIKE (BBMP) Road Infrastructure – Dasarahalli Division
Agency	Shri. K. P. Dinesh Kumar, M/s Chowdeshwari Concrete India Pvt. Ltd. #801, 8th main, 5th cross, 4th stage BEML Nagar, Rajarajeshwarinagar, Bengaluru.
Name of the work	Widening and Comprehensive Development of Abbigere main road from Renaissance Woods – 3 Apartment to Gangamma Gudi Police Station.
Sample Identification	Bituminous concrete Grade 2
Technical References	As per Table 900-3

MARSHAL STABILITY TEST
(As per MORT&H Table 500-19)

Section/ Location of Lab	:	NEZ INFRATECH PRIVATE LIMITED No.1, 2nd Floor, P.Veerappa Arcade, Ittamadu Main Road, Bengaluru 560061
Description	:	Bituminous concrete Grade 2
Date of Testing	:	26-05-2022

Sl No.	Description	Test Results 1	Tests Results 2	Requirements as per MORT&H table 500-19
1	Marshal Stability Kn	9.21	10.58	Min. 9 Kn
2	Marshal flow mm	2.54	3.69	2-4
3	Percentage air voids in Mineral aggregates	13.69	14.58	13-15
4	Voids in compacted mix	3.58	4.25	3-6
5	Percentage voids filled with bitumen	65.85	66.39	65-75
6	Density g/cc	2.2	2.21	-

Remarks: The obtained Marshal Stability tests results are within permissible values as per Table 500-19 MORT&H.

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